

THE

BRICKBUILDER

AN ILLUSTRATED MONTHLY MAGAZINE DEVOTED TO THE ADVANCEMENT OF BRICK ARCHITECTURE - SUBSCRIPTION PRICE TWO DOLLARS AND FIFTY CENTS A YEAR - SINGLE NUMBER TWENTY FIVE CENTS -

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The Brickbuilder.

VOL. I.

BOSTON, APRIL, 1892.

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THE BRICKBUILDER.

AN ILLUSTRATED MONTHLY DEVOTED TO THE ADVANCEMENT OF BRICK ARCHITECTURE.

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Happening the other day to pass through East Cambridge, we were struck by the appearance of a huge, plain wall of brick, surmounted by an effective but simple cornice, the wall being almost unbroken by pilasters or openings of any kind.

It is built entirely of common brick laid in ordinary white mortar. There is in this building almost no attempt at design. It is purely utilitarian, and yet it is a remarkable instance of the dignity and impressiveness there may be in an absolutely plain brick wall. If well proportioned and crowned with a good cornice it is easily made a thing of beauty, and is always preferable to the tortured and restless façades which so frequently do duty as architecture. The lesson of simplicity should be an easy one, but how difficult it seems to learn!

The brick manufacturers have placed at the command of architects the greatest variety of pressed bricks of various colors, so that there is practically no limit to the combinations of color that are possible. But it has often occurred to us that more use might be made of the common bricks of different colors that are to be found in different parts of the country, especially if the quality of manufacture of some of these bricks was improved as we suggested in a particular case in our last issue. Besides the Tennessee clay we then mentioned, which can be made to produce a mottled brick of low cost, the common light yellow brick of the Northwest could be used with great effect in combination; and there are doubtless others in other parts of the country that would be available. The cost of these bricks is so low that even with freight charges added they still would be a moderate cost brick delivered in any part of the country. But even in the Northwest itself these brick, which are of a pleasing light yellow color, are not generally regarded as fit for anything but interior or rear walls, mainly, doubtless, because they are so inexpensive. That they could be improved by a little more care in their manufacture there can be no doubt.

We have already pointed out, and it will be noticed by referring to any of the representations of Italian pointed arched windows which we have published, that it was the Italian method not to strike the joints of the arch bricks from the centres of the arcs, as we do, but from the centre of the opening on the springing line. This

method obviates the difficulty which the modern method produces at the point of the arch, cutting the brick up into small wedge-shaped pieces, an awkwardness which we sometimes see avoided by the ugly and incongruous expedient of a keystone, regardless of the fact that a keystone in a pointed arch is always out of place. Such a keystone must be regarded as a worse defect than that which it is sought to remedy. To adopt the Italian method, however, is by no means easy, and is still more difficult if the arch is moulded; for by this method of alignment of the arch brick, every brick is of a different shape through the whole sweep of the arch, and this, while it gives to the arch a peculiar grace and charm, and was not so difficult of accomplishment with hand-made brick, and the cheap labor of the Middle Ages, might at first seem absolutely impracticable with our machine-made brick. But we believe it by no means impossible to invent a machine that should accomplish this at very slight additional expense. Such an invention would be useful, not only in the case of pointed arches, but even more so in the case of flat arches. With present methods it is impossible to carry an elaborate moulding across the under side of a flat arch, and give the arch brick any considerable radiation. What is needed is an arrangement by which the bottom of the box in which the brick are pressed can be easily tilted and fixed at any desired angle, and the end of the plunger which fits into the box be made at the same time to conform to the same angle. This does not seem as difficult of accomplishment as many things that have already been done, and we do not doubt that, once the want is appreciated, some ingenious person will be found to give the solution of the problem.

Mr. Edward Atkinson closes his paper entitled "Fire Risks on Tall Office Buildings," in the May number of the *Engineering Magazine*, with the following remarks. "May we not," he says, "now be about to enter the *Age of Clay*, having passed through the several phases of timber, light wood, iron, granite, and steel? One may almost venture to say that we have as yet no science applied to bricks; no science applied to mortar or cement; no true art of construction in brick, fire-clay, and tile. We are groping our way to find out how to use our huge abundance of the best materials, and to adapt them to the climate and conditions of this country. One can even now conceive of a building of the Moorish tile construction — finished inside with wood pulp rendered incombustible, or with terra-cotta or other form of clay — walled within with plaster board, and covered on the outside of the roof with indurated fibre tiles, light, strong, and impervious to water. The elements exist even now, which, when combined, may render it possible to construct a building at low cost, which will be sufficiently fireproof to resist the combustion of its contents. This may be considered a somewhat visionary hypothesis, but such a building is, nevertheless, within the sight of any one who attempts a forecast in the light of the fires of the past."

Mr. Atkinson's prognostications are interesting, and many indications, besides the demands of fireproof construction, seem to point in the direction he suggests. That the clay products, when well made, form the most durable of building materials, both as to resistance to the effects of time and of fire, has long been admitted. As the necessity for fireproof building becomes more imperative, and its requirements better understood, it seems more than likely that brick and terra-cotta and tile will come more and more into use.

It seems fortunate that just at this time also more attention is being paid to the artistic treatment of clay materials, and, as the quality of these materials has never before been so good, there seems every reason to hope for a new and interesting development of brick and terra-cotta architecture. The use of the tile vault, known as the Guastavino vault, together with brick and terra-cotta, if logically carried out, and made to suggest the architectural forms, and with decorative treatments in glazed and enamelled terra-cottas, especially in the interior, must, it would seem, ultimately lead to new forms of art. But at present, what Mr. Atkinson so truly says of the want of science, as applied to brick and terra-cotta constructions, and our groping efforts after new developments, is equally true on the side of art.

We believe the late Mr. Richardson's influence is largely responsible for the frequency with which the tops of chimneys and parapet walls are sloped back instead of being finished with projecting copings as good construction requires. It is a curious fact, that the imitators of a great man will almost invariably copy his small vices rather than his great virtues. The practice to which we refer is especially reprehensible in the case of brickwork, which requires an overhanging cornice or coping to protect the joints from the weather at the tops of the walls where they are most exposed, and where the washing out of joints most easily leads to disintegration. Only the other day we happened to see in one of our suburbs an important brick building, whose parapets and chimneys had been coped with granite, which had no projection beyond the face of the wall, but sloped back from it, with the result that the upper joints had all been washed out and the parapet walls were bulging out and falling to pieces, and the masons were busy taking them down to rebuild. Yet the building had been finished but a very few years. All brick walls should have projecting copings of stone or terra-cotta, with a hollow drip to throw off the water.

The aspect of New York streets has been rapidly changing of late years both in the business and residence portions of the city. The many tall office buildings and apartment houses which have sprung up have utterly altered the scale and proportion of the streets, so that of comparatively broad streets apparently (and also practically, so far as light is concerned) very narrow ones have been made. Fine new residences are in the new sections creating a new city very different in appearance from the old, and in the old sections are gradually replacing the wearisome monotony of the streets upon streets of brownstone fronts, ugly barracks amid whose bewildering similarity the stranger vainly seeks to find his way, and whose gloomy and forbidding ugliness still remains in many quarters to deaden the sensibility to beauty of those that dwell there. Older than the brownstone fronts there was, to be sure, a city hardly less monotonous, perhaps, but comparatively refined and suggestive of cultured reserve and dignity of life; but of this so few vestiges remain that they have ceased to be characteristic. Almost as characteristic of the New York of fifteen years ago as the brownstone, is the ugly brick front which, generally built of poor brick and washed over with the most execrating and most aggressive of red colors, still makes large sections of the city hideous even where it is not partly covered with still more hideous placards and signboards. Doubtless the repulsive ugliness of most New York red brickwork has contributed largely to the infrequency of the use made of red brick in New York in recent years, and it is to be said that the red pressed brick which is sometimes used is little better in color than the ugly red paint which does so much to make a transit through New York City painful to the sensitive and beauty-loving visitor. Sometimes otherwise good buildings are much injured in general

appearance by the ugly monotony and peculiarly strident redness of the brick, as, for instance, in the case of the New York Cancer Hospital. It is, we cannot doubt, partly on account of the very natural reaction against red brick, which has resulted from the abuses above referred to, that in the better class of buildings recently built in New York, red brick seems to have been so much avoided. Brick has continued largely in use, but brick fronts are generally of yellow or old gold, so much so that the yellow or cream colored brick is getting to be as characteristic of New York as the brick with its ugly red paint used to be. The use of cream colored or yellow brick with trimming of white terra-cotta is, indeed, receiving a development in New York with characteristics distinctly differing from what is usual in other cities. These materials are not only more commonly used there than elsewhere, but the detail is richer, sometimes indeed overloaded, as in fact New York taste is apt to demand. In many cases two or three courses of yellow brick alternate with a course of terra-cotta, ornamented in low relief with a guilloche or other pattern, throughout a whole story or even an entire building; and sometimes the corners are treated in this way, using the ornamented terra-cotta bands as quoins. It cannot be denied that these buildings form an important factor in the movement which is so greatly improving the appearance of New York. In such buildings as the Judson Memorial and the Madison Square Gardens these materials have found their richest and most lavish and also their most successful treatment. But while the use of the yellow brick has become so common in the metropolis, there has been hardly any successful treatment of red brick. The horrors of the past seem to have frightened designers of taste away from it almost altogether, while yet in the soft gray redness of a wall of good red brick are possibilities of just as excellent and just as effective design as in the lighter colors. But it is something to have recognized the ugliness of the New York painted red wall, or the almost equally ugly wall of culled pressed brick of bad color.

A correspondent in St. Louis informs us that a building has recently been erected there, in which all of the work usually of stone is made from fire-clay cast solid or modelled, and burned. The architects there are now able to get sills in one piece, up to five feet in length; these sills are of solid brick or fire-clay, and true enough for all practical purposes. The same correspondent also writes that the architects of St. Louis are taking hold of the opportunities afforded by the large brick manufacturers and are doing some very good, distinctively brick architecture, that shows new ideas and yet does not depend upon novelty for effectiveness.

OUR FUTURE SUPPLEMENTS.

Out of a very large collection we have selected the following subjects for supplements, representing Italian work, and will give them adequate reproduction, with detailed descriptions, in the numbers hereafter published:—

The Certosa, at Pavia.
Sta. Maria delle Grazie, Milan.
Foro dei Mercanti, Bologna.
S. Giorgio in Velabro, Rome.
Casa dei Pittori Caracci, Bologna.
S. Marco, Milan.
S. Ambrogio, Milan.
Campanile, SS. Giovanni e Paolo sul Celio, Rome.
S. Donato, Murano.
Sta. Maria in Strada, Monza.
S. Eustorgio, Milan.

A later selection from Spanish, French, and Flemish work will be made, so that our readers will have a collection representing the best of the older work throughout Europe.

THE USE OF BRICK.

Since the days when the Israelites made their unbaked bricks of clay and straw for the Pharaohs of Egypt, and probably long before the time of authentic history, bricks have been the most largely used and the most important of all building materials.

In every part of the civilized world the materials for their manufacture are found; they are easy to make, and when well made of the best description, they are unequalled for durability. It is little wonder that in all ages and in all places the art of brickmaking should have been extensively carried on. Egypt, Assyria, Persia, Greece, all made more or less perfect burnt brick, and brought the finer branches of terra-cotta to a perfection which has never been exceeded. From a constructional point of view it was left to the Romans, with the general introduction of the arch and the vault, to carry the use of the brick to still higher possibilities.

During the darker mediæval ages which followed upon the dismemberment of the Roman Empire, brick seems to have somewhat lapsed into disuse, — at all events it had no longer the prestige it enjoyed in Rome, where the great baths, aqueducts, and public buildings of the Empire had their arches and vaults of brick, whether used as a constructive material to be faced with marble and mosaic, or themselves both the construction and decoration.

There was in the decline of the Empire a lapse from a debased civilization to a more barbarous but perhaps more healthy atmosphere.

The classicism of Rome received a new and semi-barbarous life in the Romanesque forms, and stone largely replaced brick and marble. Northern Europe was overrun with barbarous hordes, England was in the throes of giving birth to a new and great kingdom. In all the then civilized world, men felt that they were working out new problems, apart and cut loose from all that had preceded them. The civilization, the knowledge, the culture of Greece and Rome, their art and their learning, could not appeal to the only learned class, who were priests of a new order of things, to whom Greece and Rome — the old Rome — but typified all that was evil and harmful, and to the rest of mankind it appealed not, for they knew nought of it. They were sufficiently engrossed in holding their own place in the world, in defending their home, or their lord's home, or their king's land. So building, which has always kept pace with civilization, had a seeming set-back.

From this great upheaval of the world, as from upheavals that occur in the lives of individuals, came, nevertheless, a truer and stronger growth. The vigorous life and development of Romanesque indicated how strong was the new artistic impetus in the south, while in the north Gothic gradually grew to finer and fuller perfection until there were erected all over Europe the magnificent cathedrals, now, as then, marvels of constructive art and of decorative ability, the highest combination of decorative construction and constructive decoration, of utility and beauty.

It was not until all this had been fairly achieved that the world turned again to its past from which, during all these years, it had only unconsciously drawn, to see what could be learned from that which had gone before, and, with the swing of the pendulum, all the world was on fire with the Renaissance. Greek art and Greek literature, classic forms and classic tongues, were the only interests.

Violent as was this reaction to the study of the long-neglected classic, it brought with it greater benefits, for much that was grand and good in the older civilization, and which had run the risk of being entirely lost to the world, was now recovered; and printing gave the assurance that all the accumulated knowledge of the world would now be permanently preserved.

With the Renaissance, brickwork again came into prominence. It was used extensively in Holland, in Tudor England, in France and in Tuscany, in North Germany and in Lombardy, and in all these countries, with the constructive common-sense which makes their brickwork beautiful, and noble examples for all times. In this country, though taught originally by good Dutch and English masons, we have so carefully avoided the principles of construction as to have made our brickwork — with the best of materials — the most wretched artistically.

The keynote of all brickwork is the joint. The wall is composed of small pieces. The true builder, the true artist, will never attempt to disguise this, but will rather make it serve his purpose by showing it as clearly as possible and bringing beauty out of the materials with which he has to work. The one knows that on the quality of his joint and the careful bedding of his brick depends the

stability of his wall, and the other is fully aware that what is necessary in construction ought to make an element in the beauty of the whole.

This principle was thoroughly recognized among all the people whose brickwork stands to-day as examples indicating the direction in which alone true advance can be made. There are various methods of striking the joint, of which the best simple one is that which cuts back the upper portion of the joint, and makes an even splay out to the ashlar, thus making each course to form a drip over the joint, giving the joint itself an inclination which allows the water to run freely off of it. This can be done by a good mason with his trowel, but it can be more perfectly done with a tool. It has the disadvantage of shadowing part of the joint, and so losing the value of its width.

Another joint is made by flattening the protruding mortar to the face of the ashlar with trowel, and then with straight edge and knife cutting off both edges to a true line. This, if the mortar is of the best, will stand well and is very effective. It is a joint used frequently in Holland, where the bricks are often more or less irregular, and, by this means, using a very wide mortar joint, they are able to get perfectly true horizontal lines even where the bricks themselves are warped or crooked.

There are also the concave and convex joint both formed with tool and generally used only on fine work, where the bricks form a true line.

All have their special uses and special advantages, and the various merits of each should be carefully considered by the architect in connection with each piece of brickwork which is undertaken. In all cases, it is important that the horizontal joint should be absolutely true, and the perpendicular joints accurately plumbed over each other.

The second point of importance is the necessity of so laying the small pieces of material as to make the wall a homogeneous whole, and this gives us the various forms of bond, which, being the necessity of the builder, are made the opportunity of the architect to obtain beauty.

Let us run over shortly the various methods of the builder for attaining the homogeneous wall and see what the architect has evolved from his data. The chief bonds are as follows: Alternate rows of headers and stretchers which may be arranged with the joints of each course of stretchers perpendicularly over the similar course below, or with the stretcher rows laid to break joint with each other. These give *first*, the so-called English bond (in most common use in England for ordinary work), and, *second*, the cross bond, which is that most used in Belgium and Holland.

The latter, while equally perfect in bond, is far handsomer in appearance, and has just that touch of refinement which one would expect to find in an artistic people like the Dutch as contrasted with the more matter-of-fact English, who, having found the best bond from a constructional point of view, are contented to let the matter rest there. The palace at Mechlin by Keldermans and the outlying buildings of the castle at Aertselaer are beautiful examples of the artistic effect to be obtained by carefully laying this bond even without variety of color. It will be seen that the change in the position of the header joint gives a diagonal line of vertical joints, where the English emphasizes only the vertical and horizontal lines.

Third, we have alternate stretchers and headers in each course, called Flemish bond — though never, so far as I know, used in Flanders — and possibly so called because it presented a better appearance than the English bond, and was therefore considered "flemished" or finished. This bond, while quite as strong for all practical purposes as the English or the cross bond, has the advantage of evenly distributing headers and stretchers so that if, as often occurs, the headers are a different color from the stretchers, we avoid the stripes which the other bond gives. This bond also may be arranged in two ways: either with the headers placed over the centre of the stretchers, or placed over the centre of the joint, the former the more usual, giving an equal distribution of joints in the wall surface, the latter giving the joints but a quarter brick lap over the joint below, and emphasizing diagonals both of the joints and bricks.

Besides these ordinary bonds there are an infinite variety of less useful ones, which, however, give especial opportunities for diapering, such as three headers and a stretcher in each course, called garden bond in England, and those using brick on edge. A good example of fancy bond is seen in the St. John's Inn at Hoorn.

The use of face brick of far greater cost than the common brick, and the economy of using as few headers as possible in the

facing, have led us either to be content with headers once in every seventh course, or, still worse, to make use of blind bond, where stretchers only appear on the face, and all is reduced to the dead uniformity of a painted surface: the neglect of constructive laws thus causing immediately a loss of beauty.

It is unfortunate both for our joint and our bond in this country that we have not, as in England, a fixed size of brick, or, at least, that there should not be always a perfect ratio between the various dimensions, so that two headers and a joint will make a stretcher, and so that we may always bond thoroughly a face brick with a common brick. On the other hand, our variety of sizes gives us many opportunities for effects which could not be obtained with uniform brick.

The employment of the various bonds, the patterns they naturally form when so orderly laid, and the variations of color found in common brick, suggested to the builders of Renaissance centuries the frequent use of diapers, accented more or less by colors. A little study of the possibilities of patterns without cutting brick, *i. e.*, using a regular bond, is surprising, and gives ample—indeed, often too ample—chance for decoration. We are very familiar with late examples of the unwise use of colored brick in decorative diapers, but the earlier workers were content, and wisely so, with comparatively simple design and quiet contrasts of color. Here, as in every other place where the architect is tempted to use color, the greatest care must be exercised, and even with care and thought it is not granted to all architects, any more than it is to all painters, to use color wisely. Owing to this, many of the best critics and teachers of architecture have strongly deprecated the use of color, and monotonies are certainly safer. It does, however, sometimes happen that an architect has arisen here and there who has been able to show us what color can do for architecture when well treated, and we have admirable facilities in the colored brick of all shades now manufactured here, and in our excellent terra-cottas.

Glazes and enamels again give us great opportunities, for in them we have a permanent color of superb brilliancy and great durability, and it is hoped that we shall develop such color sense as shall enable us to use these materials wisely and well.

In Italy, the land of colorists, and in the East generally, where the color sense seems very much developed, we have excellent examples of what can be done by a judicious use of color in the outside of our houses and public buildings. In the East, where Persian or Moorish influences were felt, enamels were freely used for these purposes, either by themselves or combined with the various colors of polished marble. In Italy, marble in various colors was used profusely and with great judgment. Colored glazes, such as those of the Della Robbias, were also somewhat used, and in the brickwork also we have many examples of the careful use of some simple colors.

All these furnish us with examples which may be very readily adapted to brick, or at least furnish us with most admirable motives, showing the lines on which our color treatment should be based. What these people have succeeded in doing with the more precious materials may at least serve as examples to us of what we may accomplish with brick and terra-cotta of various colors, both glazed and unglazed.

To return, however, to the use of diapers. Their chief object is to give variety to a wall space, and, therefore, they should not be so marked as to make the pattern insistent, and should rather give a sense of variety, and suggest that study has been given even to the bare wall, than to lead the eye to the tracing of the design.

It is better to leave something to the imagination, as a diaper too pronounced is apt to be wearisome. Excellent examples of good diaper may be seen in Aduard, in Friesland, and in the houses in Ypres illustrated in Ysendyck, and in the various chateaux of France, especially the brick façade of the Chateau de Blois, and in many of the Elizabethan houses of England. Nor do we have to-day to go so far afield for good examples, as we have in the Madison Square tower in New York a beautifully executed piece of work, most suggestive of thought and most charming in color.

The capabilities of brick do not end, however, in the treatment of wall surfaces; for with moulded brick we have endless opportunities for good string courses and mouldings, and in terra-cotta we have unbounded field both of form, color, and enrichment.

As in the use of color there is danger, so too is there in the use of moulded ornament. A mould once made, it is almost as cheap to have moulded and ornamental work, as to have it plain, and one is strongly tempted to a profuse use of mouldings and modellings.

Certain classes of ornament, such as figures or foliage, or any of the less conventional forms, do not bear reduplication, and the evils of using terra-cotta for such purposes are seen in many of the semi-Gothic buildings erected during the Doulton revival of terra-cotta, as, for example, the Natural History Museum in London, where figures of animals and plant forms are reproduced in dull monotony, or even to a less marked extent in the Museum of Fine Arts in Boston.

On the other hand, simple Renaissance patterns of conventional mould may be reduplicated and used in masses with success, and indeed seem more proper when so moulded than when carefully executed in stone by the hand of the carver; and the same may be said of Gothic ornamental diapers.

For mouldings, both the English and Dutch have made large use of hand rubbed or carved rather than moulded brick, and both countries are rich in examples of this work. The brick for this work are made of very fine clay well mixed with sand, which produces a brick very even in texture, and so soft as to enable the mason to cut it readily with a small saw or chisel, or grind it down on a wheel, or rub off with a mould.

The great objection to the use of such brick in this country would be that it is very porous and soft, and would be likely to disintegrate rapidly under the effects of frost. Even in England, where the frost is not so important a factor, the bricks wear away very rapidly. I have seen houses in London that have been standing not more than ten years, where the string courses and mouldings, exposed to the wear of passers-by, have lost all their arrises, and had their angles completely rounded off. The same brick is constantly used for their carving as well as moulding. With us, however, the hand rubbed moulding is unknown; and carved brick, which was used sparingly here by the late Mr. Richardson, has never come into general use, it being, I think, rightly felt that a homogeneous mass is a more proper field for sculpture than a mass of jointed blocks, especially when the material, if durable, is hard to carve. In Bruges many houses showing the profuse use of such ornament are still standing in good preservation, and fine examples are scattered through Holland and Belgium. In England the country is rich in old brick buildings of the Queen Anne and Georgian periods, which were profusely covered with ornaments and enrichments executed in brick; and much good work has been done of late years by Mr. Norman Shaw, and Messrs. Ernest George & Peto, both in London and in the country. Throughout the newer portions of Kensington, in the Albert mansions and the large house adjoining them in Hyde Park, and many of the artists' houses in the neighborhood of St. Johns Wood, there are very beautiful examples of quiet and dignified use of plain red brick with well designed and well executed mouldings.

It may be said in passing, that the rubbed mouldings, thus executed, have a crispness and texture which we do not obtain in moulded brick.

With history at our back, and modern facilities and advance before us, we see how large is the field thus opened in the use of brick and terra-cotta, and we have a still further opportunity in the conjunction of brick and stone.

There are certain places where stone seems almost a necessity, or is at all events the natural material to use, as for window sills, or for horizontal window heads, or where angles occur which are not rectangular, or again where great projections occur, as in large corbels and cornices.

In many cases, also, the large blocks of stone are needed from an architectural standpoint, to give massiveness to a basement, or to reinforce and emphasize an angle. It is true that terra-cotta in large blocks may be used, even in such cases as this, but its natural surface and texture are not always adapted to very large areas, and if moulded to a rough surface generally suggests imitation of stone. Here again we have a wealth of good examples, such as the Market Building at Haarlem by Lieven de Key, the various buildings by Keldermans, and many of the best town halls. In France, the Chateaux de Blois, des Ifs, Martainville sur Ry; and in England, the Holland House in London, and an infinite number of important halls and houses throughout the country, for in England this was a very favorite and very successfully treated style. We see also how it can be carried to extremes, as in many of the Dutch buildings, dotted all over with spots of white stone, picturesque even in its extravagance.

In all cases, I think, the use of brick in imitation of stone is to be avoided, as are all methods which use one material in imitation of another; for we lose the distinctive character of the material we

SUPPLEMENT TO THE BRICKBUILDER.

APRIL, 1892.

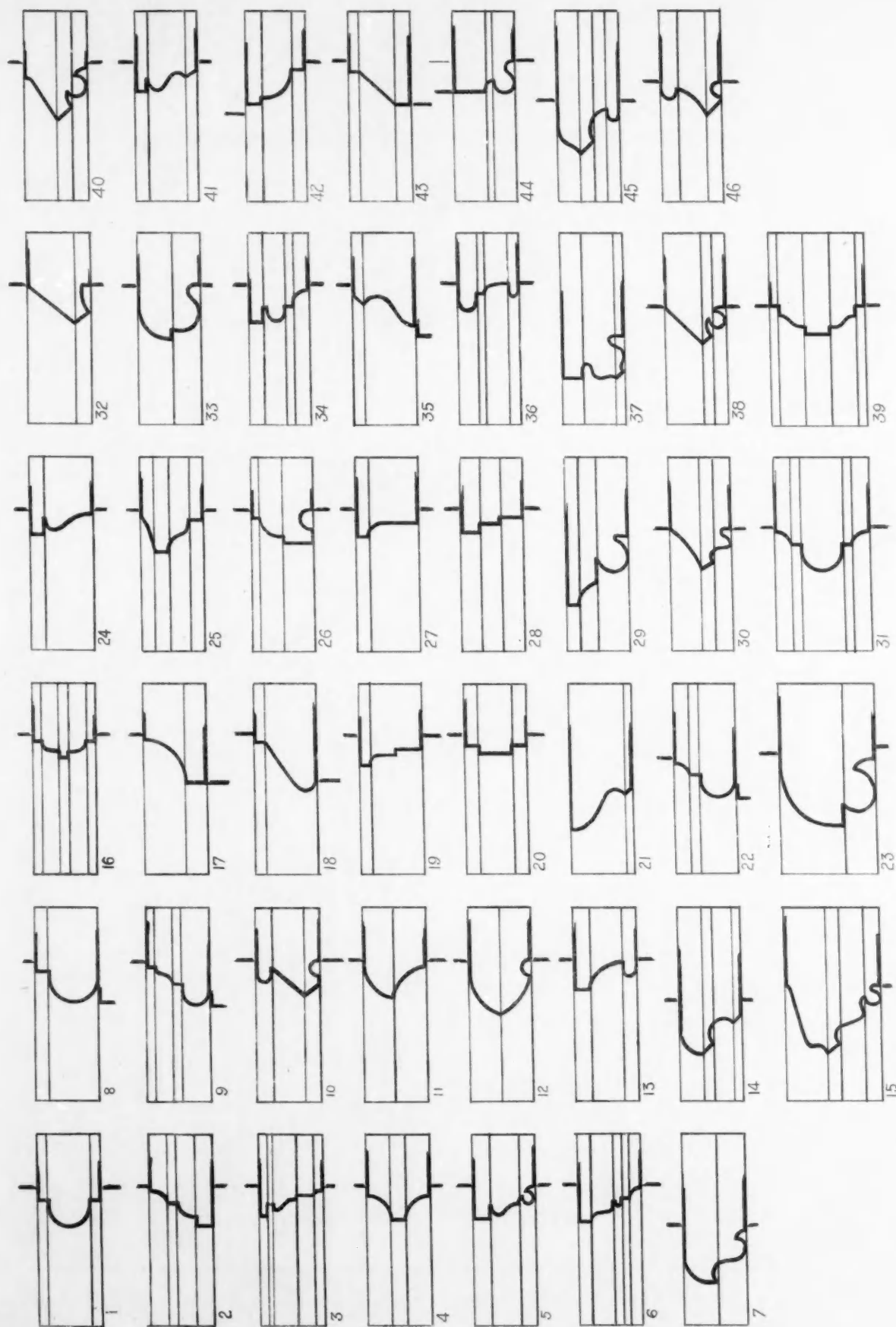


CHURCH OF S. MARIA DELLE GRAZIE, MILAN.

Second of a Series of Photographs of Foreign Brickwork.



THE DEPARTMENT OF THE ARMY

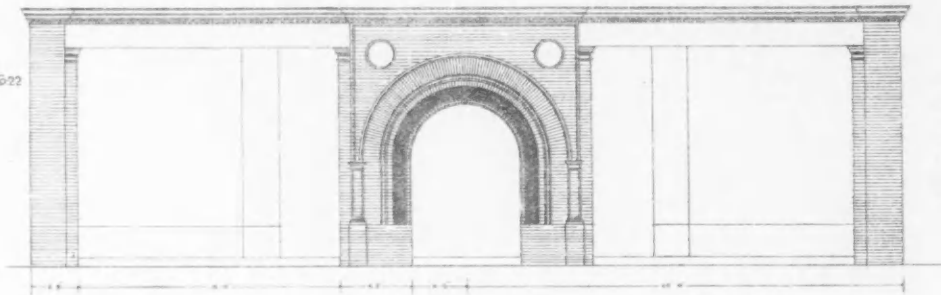


Drawn for The Brickbuilder
Forbes Co.

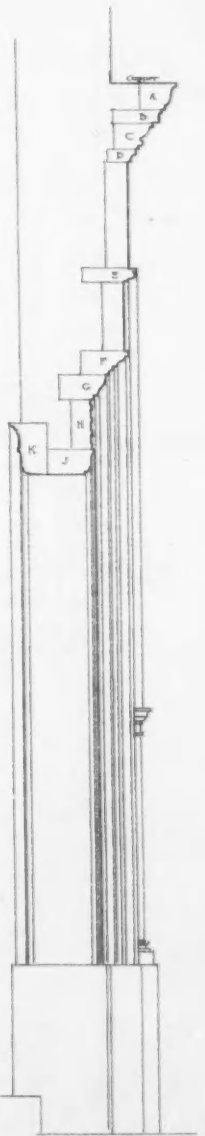
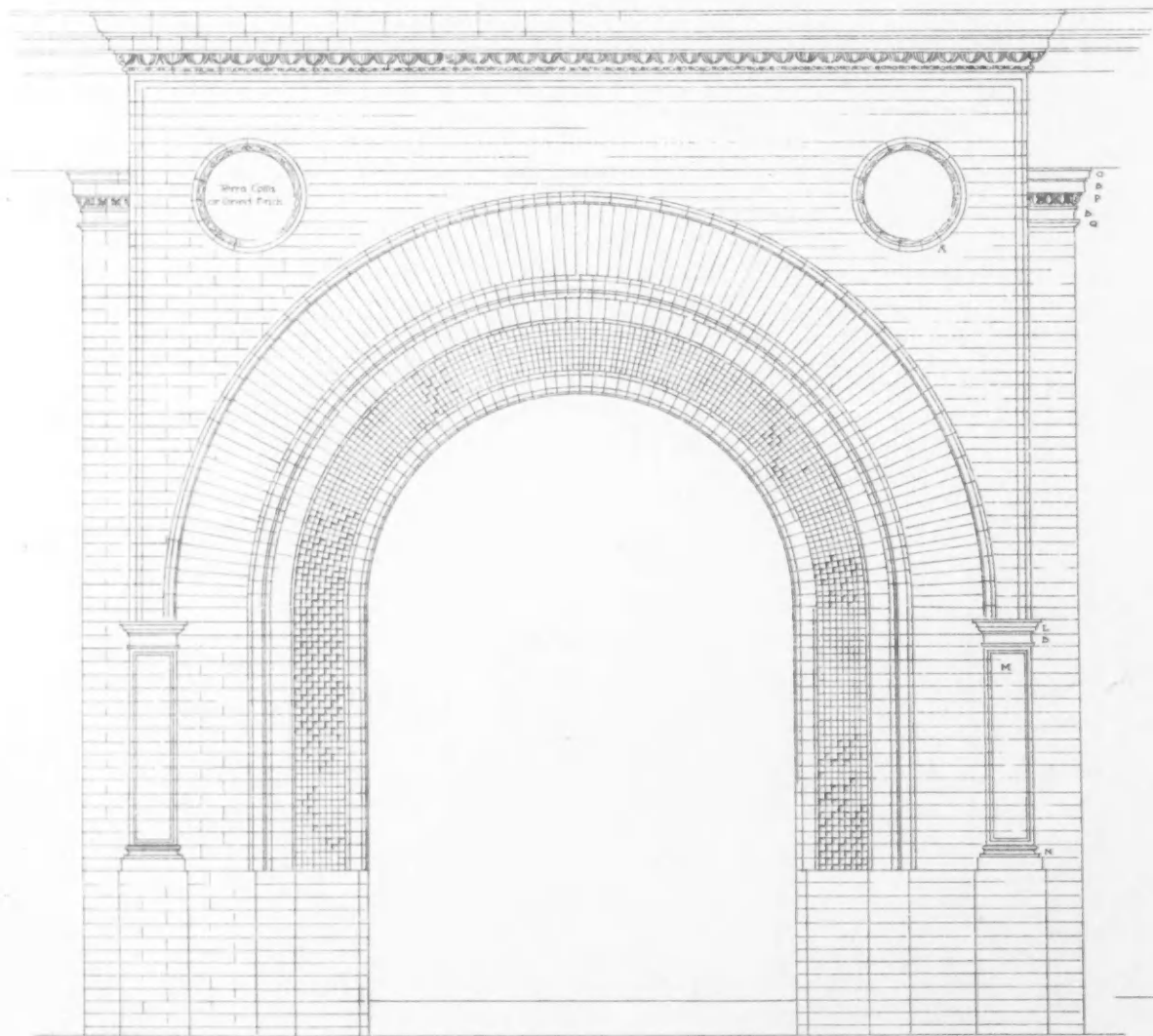
SOME ENGLISH MOULDED BRICKS.
REDRAWN FROM THE CATALOGUE OF MESSRS. JOHNSON & CO., KEYMER JUNCTION, SUSSEX, ENG.

DESIGN FOR AN ARCHED ENTRANCE by "Tuscan"

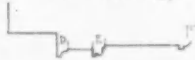
A. Philadelphia Brick Co. 22
D^o 9
D^o 10
Peerless 25
Phila. and D.F.D. Co. 50+
Peerless 70
Phila. and D.F.D. Co. 514
Crown
Phila. and D.F.D. Co. 26



K. Phila. and D.F.D. Co. 25.
L. D^o 7
M. D^o 11
N. D^o 15
O. D^o 8
P. D^o 105
Q. D^o 5
A. D^o 107

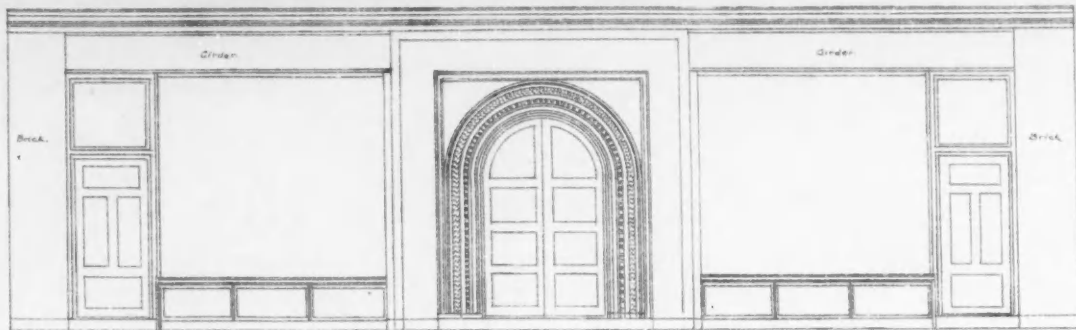


Plan above (ap)

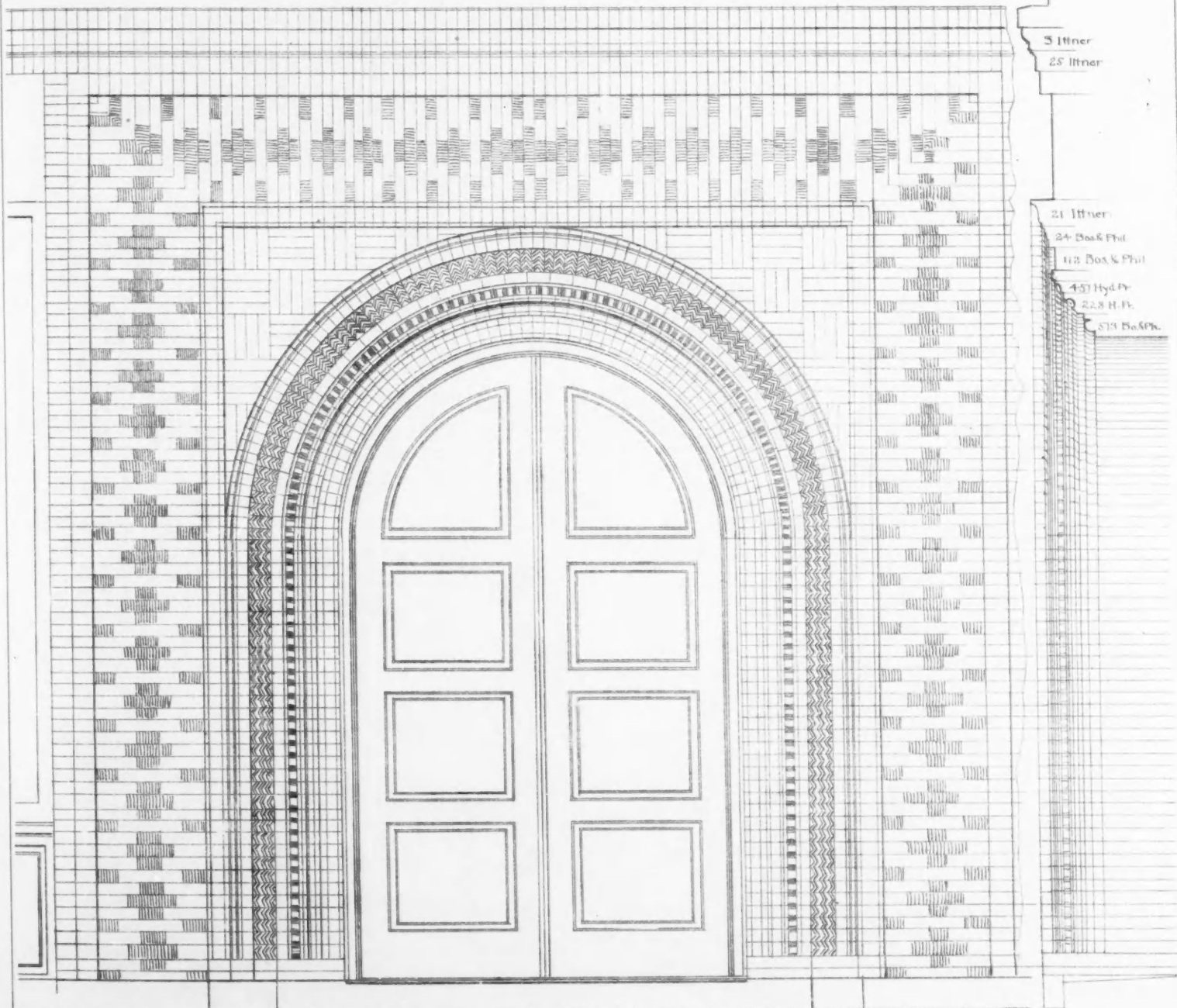


Plan thro Diaster





GENERAL SCHEME - SCALE $\frac{1}{4}$ " = ONE FOOT.



ELEVATION
AT
INCH SCALE

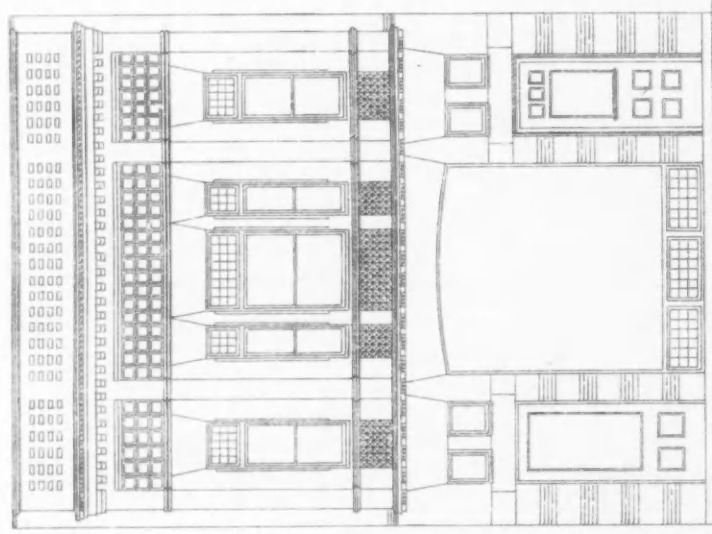
A. BRICK DOORWAY

SUBMITTED
BY
"PIACENZA"

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BRICKBUILDER COMPETITION, NUMBER ONE.

SECOND PRIZE: BY W. H. KILHAM, BOSTON, MASS.



— FRONT ELEVATION —

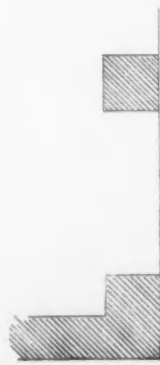
BRICKBUILDER COMPETITION

A TWO-STORY STORE FRONT

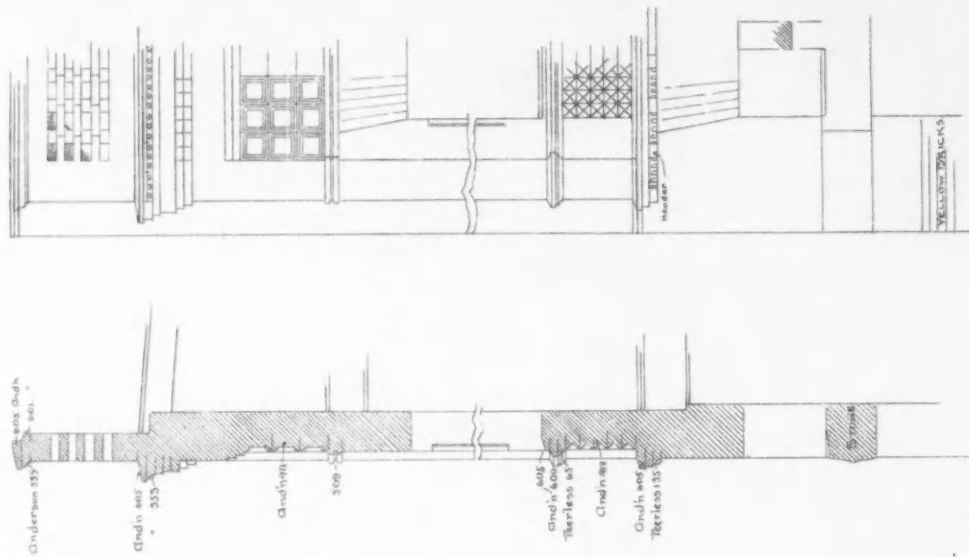
BY BRICKBAT



— PLAN AT WINDOWS —



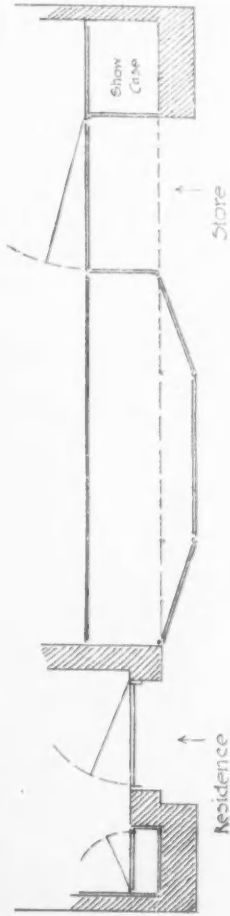
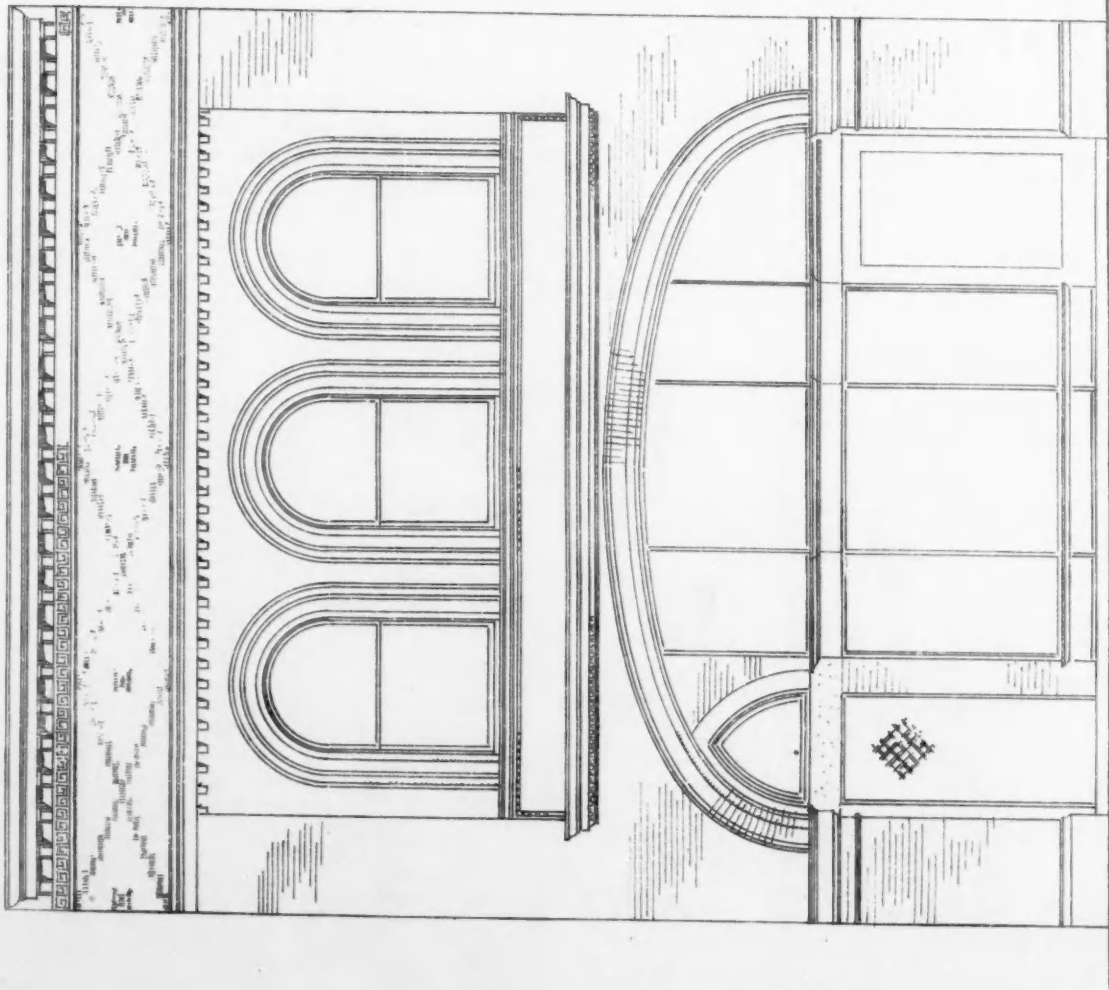
— PLAN AT ENTRANCE —



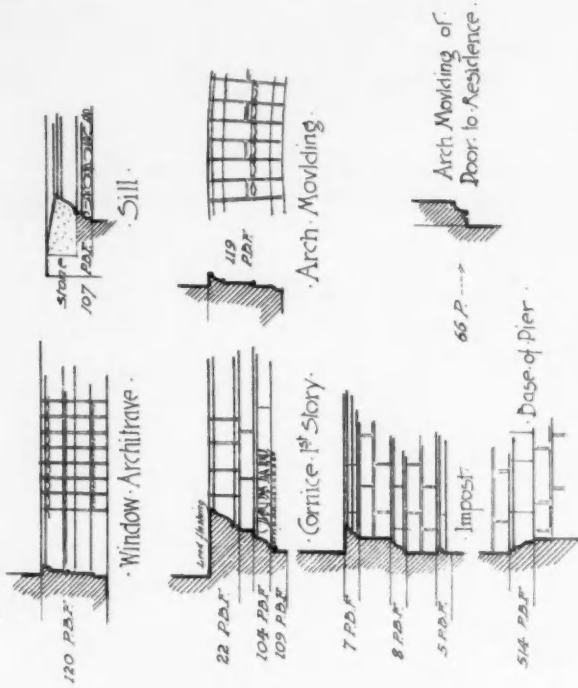
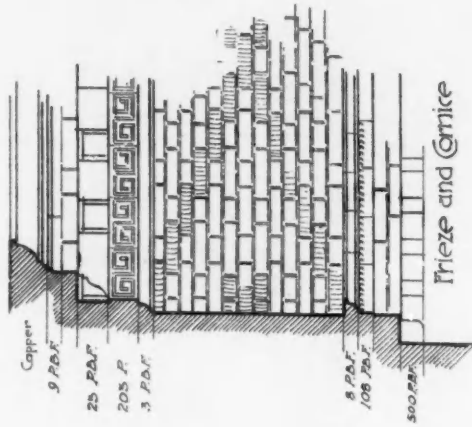
THE BRICKBUILDER.

VOL. 1, NO. 4.

PLATE 29

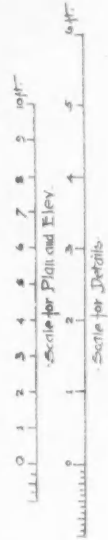


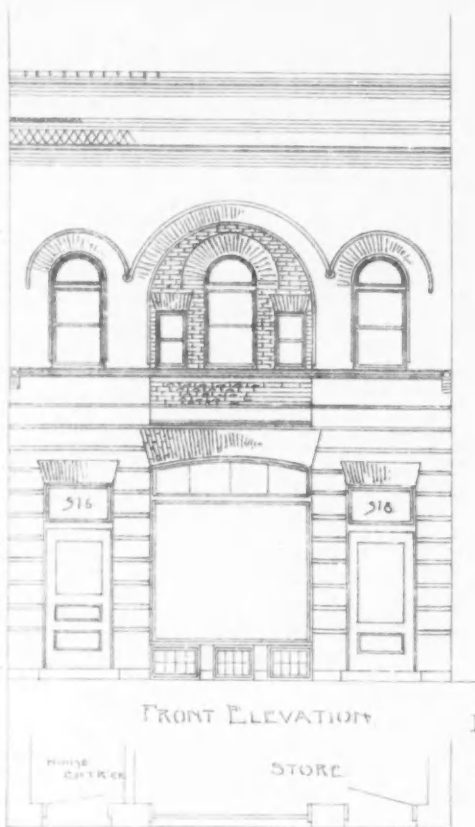
ABBREVIATIONS
PDF Philadelphia and
Boston Face Brick Co.
P Peerless.



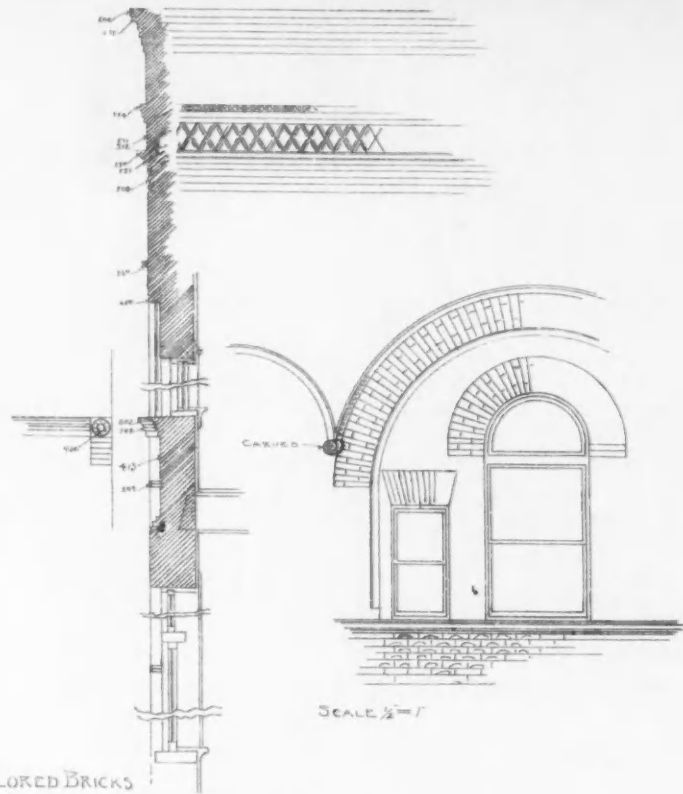
A TWO-STOREY STORE FRONT.

by J.





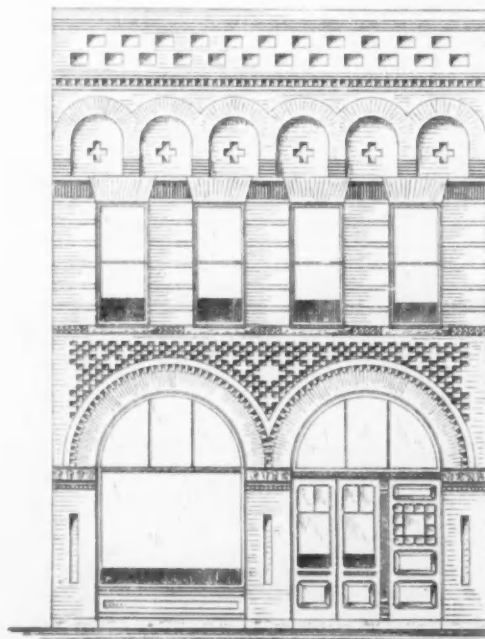
SCALE $\frac{1}{4}'' = 1'$



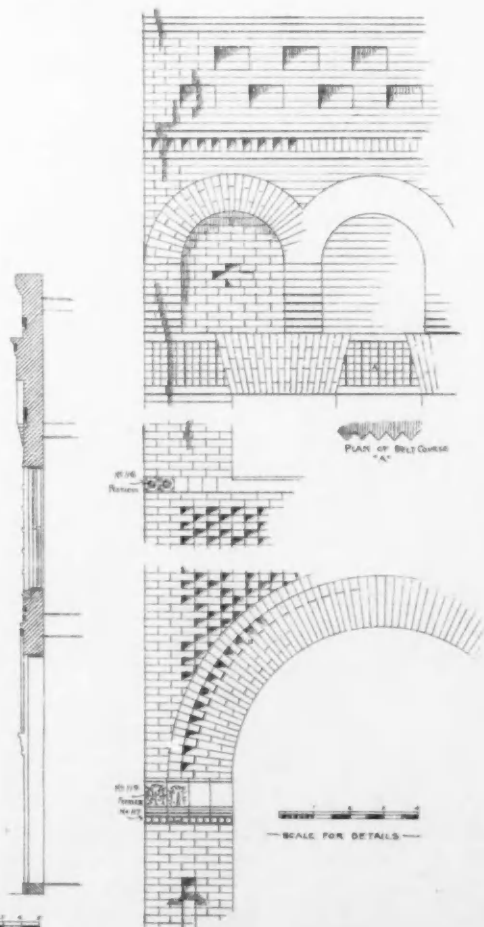
BUFF COLORED BRICKS
FROM
NEW ENGLAND ANDERSON PRESSED BRICK CO.
CATALOGUE OF 1887

By
MEMO.

THE "BRICKBUILDER"
— COMPETITION NO. 2 —
— SUBMITTED BY —
— KOKOMO —

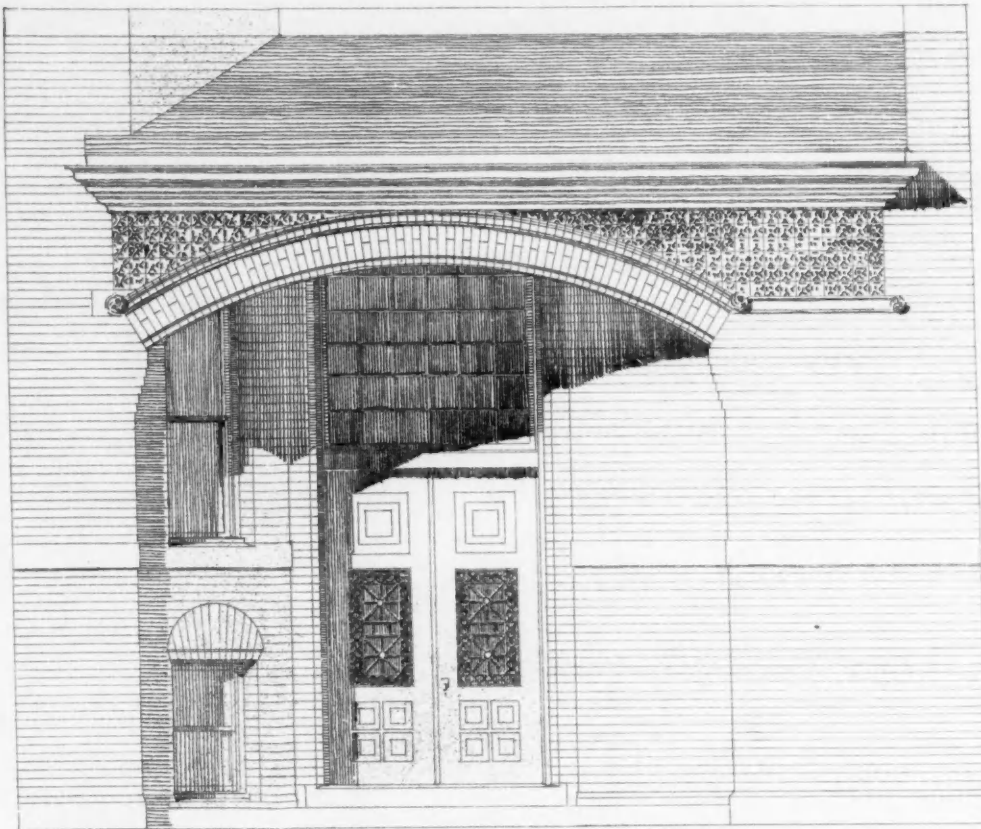


— SCALE FOR ELEVATION —

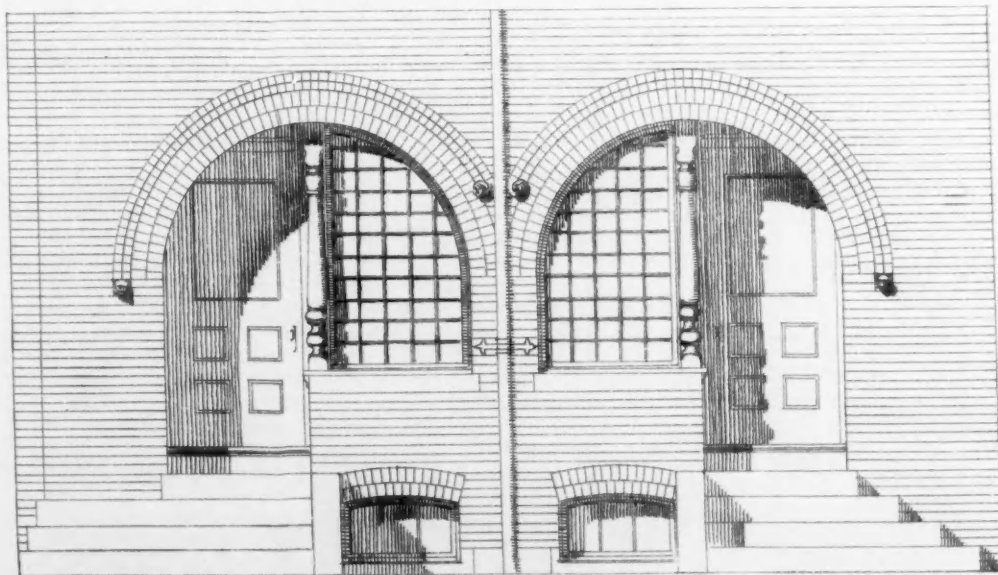
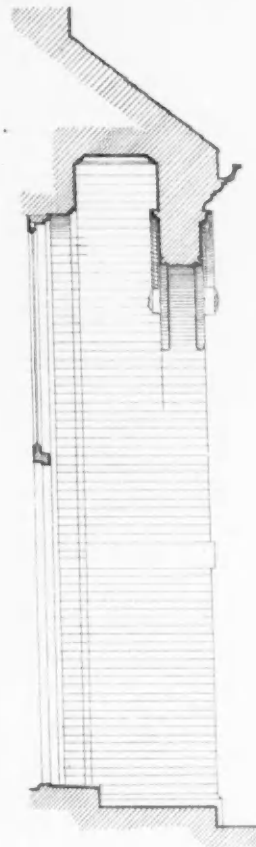
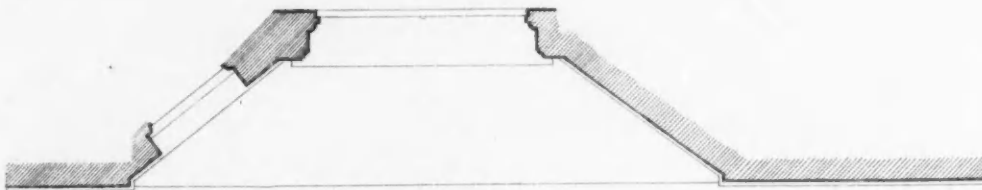


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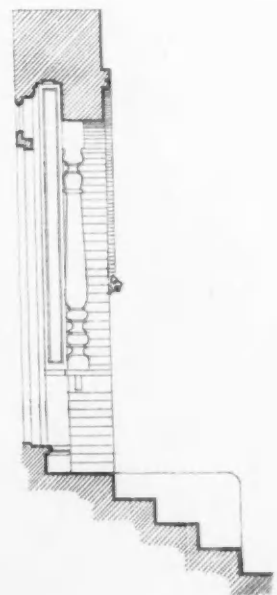
BRICKBUILDER COMPETITION, NUMBER TWO.
THIRD PRIZE: "NEMO," EDWARD F. CAIRNS, HARTFORD, CONN.
FOURTH PRIZE "KOKOMO," WM. J. PERTZ, KOKOMO, IND.

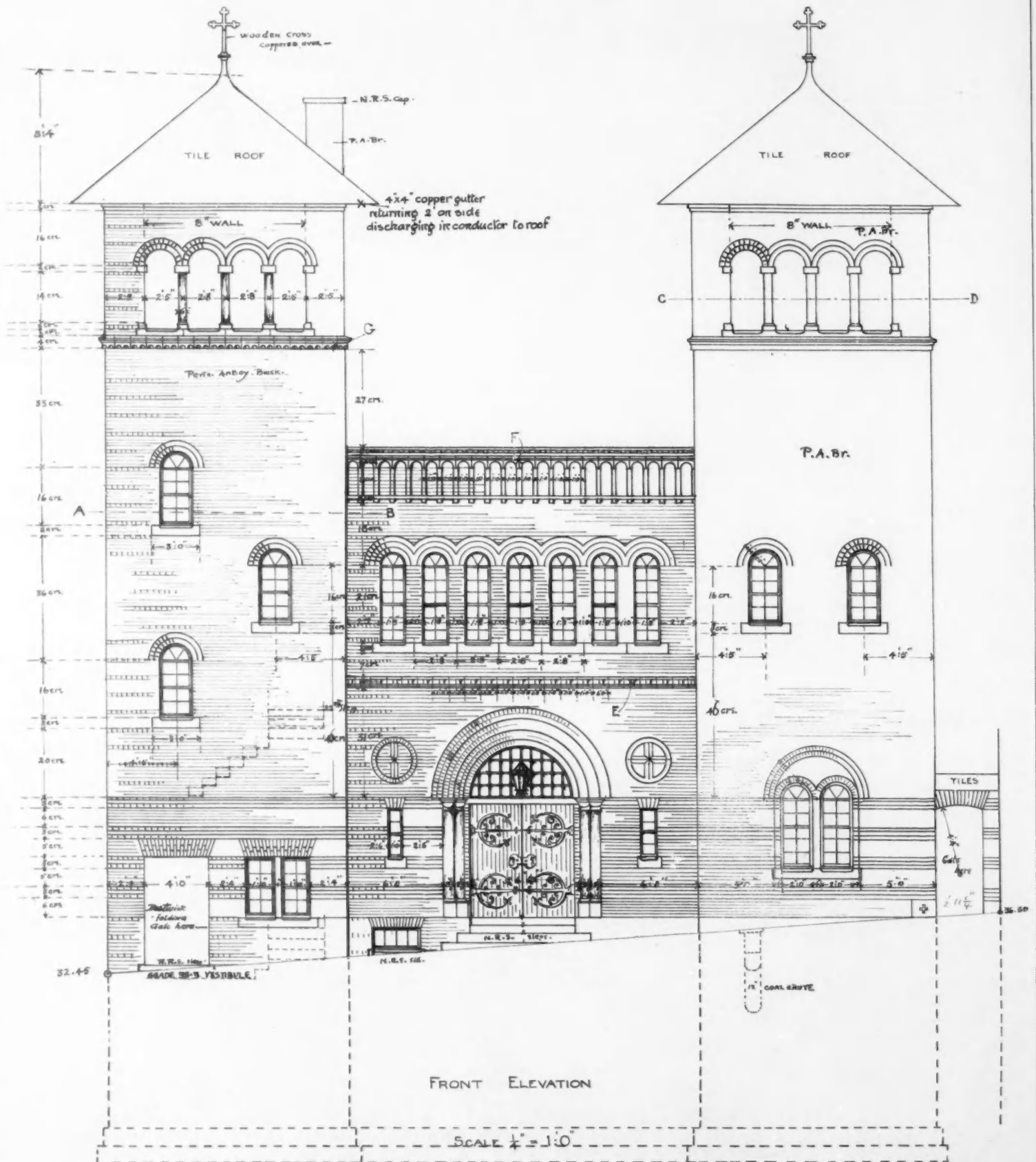


~ TRINITY TERRACE ~



~ IRVINGTON ST ~





are employing, and gain nothing in its place, except, perhaps, a dearly bought economy.

The highest beauty in architecture, as in other branches of the fine arts, is based on truth, expressed in the materials, shown in the construction, and without truth there is no true beauty.

In all these matters I have thus briefly touched upon, we have everything to learn from the past. We shall make more true advance by humbly accepting and studying these past types, than by endeavoring, apart from them, to strive for that ever vanishing "new thing" which has been the bane of much of our work in this country.

R. CLIPSTON STURGIS.

NOTE.—The student wishing to pursue this subject further and get more full information, is referred to the excellent works of Chabat, "La Brique et La Terre Cuite," "Lacroux, "La Brique ordinaire au point de vue décoratif," or still better to the buildings themselves. If the opportunity is not given to study on the spot, Ysendyck's "Documents de L'Art dans les Pays Bas," gives the best examples in Holland, Sauvageot's "Palais, Châteaux, Hôtels et Maisons de France," contains many of the best French examples. Nash, in his "Mansions of the Olden Times," gives some of the more important English examples, and the best specimens of North Italian work are splendidly represented in Strack's "Ziegelbauwerke des Mittelalters und der Renaissance in Italien."

ORNAMENTAL ARCHES.

Gauged and rubbed brick arches are now employed in a great variety of ways, both for construction and ornament. For plain buildings in which strength is the main consideration, the arch is generally built in separate rings of two or more concentric half-brick arches. Each of these is, as we have said, an independent arch, though sometimes, to secure bond, lacing courses are introduced at intervals. For arches of small span the necessity of building in separate rings is obviously to prevent the great divergence of the bricks that would arise if the bricks were carried from the intrados to the extrados. It will be seen, therefore, that for arches over windows of small radius it is desirable to employ half-brick rings. A brick tapered too much is unsatisfactory in appearance, and this is why, for arches of small span, it is sometimes desirable to increase the radius to make the arch; in fact, a segment instead of a semi-circle.

In large, plain arches, where an ornamental effect is desired, and there are no mouldings, the joints are generally made to radiate throughout the whole thickness, but are broken by transverse joints. Thus, for an arch of two bricks in thickness, every other course would show two headers, one at the extrados and one at the intrados, and a whole brick between. The effect is that of English bond in the section of a wall of two bricks.

Only since the revival of brick architectures have architects given much attention to the construction of moulded brick arches, and therefore we find that, for church arcades, stone does duty in the large number of instances, even where brickwork is otherwise introduced into the plain wall surfaces. The improved manufacture of moulded brick and terra-cotta has led a few of the more advanced to step out of the beaten track and employ moulded brick for their arches, carrying out in a more complete and satisfactory manner the idea of brick architecture.

Stone for pillars and arches, and brick for spandrels and walls, are a combination that does not accord with any principle or system of construction. The Romans employed brick, but they used it in arches as well as in walls, in numerous instances; the bricks were used often as a facing, the remainder or backing of the wall being of concrete,—a material that goes with brick even better than with stone.

In North Germany, Belgium, and Italy the brick architecture did not confine itself to walls and surface, but entered largely into complicated details. The moulded arch asserted itself in all the principal buildings. The English examples attest the same thoroughness. Lollard's Tower, Lambeth Palace, Hampton Court Palace, St. Alban's Abbey, Layer-Marney, Essex, and other buildings in the eastern counties exhibit moulded brick archwork. However pleasing the mixture of brick and stone, there are objections to the combination, especially if the stone is in large blocks, and an inequality of settlement arises in consequence. Brick spandrels on stone arches have the same tendency to separate and produce fractures.

Sometimes for ornamental arches bricks are moulded which have geometrical or other devices cast upon them. The result is to form a band of enrichment around the arch which resembles carving. The zigzag or chevron, billet moulding and other Gothic ornaments are sometimes introduced at the angle of the arch bricks, and produce a rich effect. But surface ornamentation can be overdone.

The best plan is to introduce it on a part of a face so as to allow a plain face to intervene between one course or band and the next. Few kinds of enrichment are more suitable than the chevron or billet for arches. A plain leaf or geometrical form is more effective than very elaborate patterns.

There is an objection to the use of moulded bricks, however, which may be noticed. They would have to be manufactured for every form of arch, as every arch would require bricks of a different mould to suit its curvature and thickness, and this increases the expense and causes delay. On this account few arches are built with purpose-moulded bricks. The ordinary rubbing brick can be adapted by cutting and rubbing to most arches.

There are, however, special circumstances under which the use of moulded arch bricks may be used with advantage, as in a number of arches of a decorative character of the same radius and span, as in an arcade. The cost and labor of cutting and rubbing will here be saved. Again, the ornamental moulded brick affords a comparatively cheap substitute for carved work when many similar arches are required. Another advantage in using moulded arch bricks is that for external work they are harder and more durable than the soft rubbers, which are often of an inferior quality.

The value of the brick impressed with ornament is its suitability for plain arches, as, for example, the voussoirs under an ordinary label moulding. The label brick is required to give character to the arch. Nothing looks commoner or in worse taste than these ornamental bricks set flat with the wall without a label moulding, as we often see over the windows and doors in new houses and tenements. The ornament looks out of place in such a situation. We strongly object to the whole of the brick face being covered by ornament, which should be confined to a part only of the depth. The object of the ornamental arch brick should be to confine the flat ornament to lines or bands in the plain face of the brick. Where it covers the voussoir the idea of an arch is lost, and the appearance of strength and compression ignored. The arch certainly is not the place for ornament of this character, and we prefer the moulded voussoirs for ordinary work, especially the moulded arches.

It would be exceeding the limits of the present article to describe the many notable instances of brick arches of the kind we are describing. The Low Countries, North Germany, and North Italy are the principal countries in which brick architecture has been developed, in any one of which the student will find the art of arch cutting and moulding has been carried to a perfection. Take, for example, the arch work found in such a city as Ypres, in Belgium, and applied not only to archways, but to window-heads and tracery, one or two instances of which we have already given.

The courtyards or cortiles of many Italian palaces, such as that of the Palazzo Bevilacqua, at Bologna, have arcades around them, often of two stories, the arches of which are of red terra-cotta voussoirs, with an ornament on the face and in panelled soffits. Very beautiful examples of Gothic brick arches inclosing three lights of trefoil arches occur in many of the Venetian and Sienese palaces; at Siena the brick arches of windows in the Palazzo Buonsignori, bands of red and white brickwork are common in the wall surfaces, and we might name the cathedrals of Orvieto and Como, the latter of marble, each having three fine circular-headed and enriched doorways suggestive of the decorative work of this material. Sta. Maria, of Strada, affords another instance of a highly embellished exterior in brick and terra-cotta.—*The Building News*.

A FRENCH VIEW OF AMERICAN BRICKWORK.

La Semaine des Constructeurs, in its issue of April 9, has, under the heading "Technical Notes," an article "How Brick Masonry is done in the United States," which should be of considerable interest to our architects and builders, as giving an outside view of our methods of executing brickwork—or, at any rate, of some of them—for the bad methods of construction *La Semaine* refers to are not all of them as universal with us as that journal would have its readers believe. Still, the description given is, on the whole, accurate, and makes one realize how absurdly, almost inconceivably bad, many of our ways of work must seem to one brought up in the excellent and thorough traditions of workmanship which still largely obtain in the Old World. After a careful description of the ordinary American bricks, pale brick, hard brick, face brick, and due reference to our Pompeian and mottled bricks, and recognition of the unusually excellent quality of American face brick, the writer in the *Semaine*

goes on to describe and criticise with great justness the methods of work which usually obtain in America. With regard to our common bond of a course of headers, every fifth, seventh, or ninth course, "it will be seen," says *La Semaine*, "that the bond is of the slightest character." In the case of thicker walls the article describes a worse method than is often tolerated in the East, though we have seen it used here in country places, and in the West it is still more frequent, though we believe not as universal as the French critic thinks. "The workman," says *La Semaine*, "builds first a wall half a brick thick on a line with one face of his wall, laying four, six, or eight courses of stretchers. Then, on a line with the other face, another similar and parallel wall. This done, there remains between those two walls a void, which may be, for example, of one brick width if the wall is to be of two bricks thickness. Into this space the mason hurls, with astonishing rapidity, five or six trowelfuls of mortar (the trowel is very large), pours a bucketful of water on top, makes a paste by stirring some instants, throws in with both hands bricks, halfbricks, and brickbats, and arranges them as best he may without loss of time, that is to say, 'hit or miss.' A few more trowels of mortar here and there, a half-bucket of water at need, and the inside of the wall reaches the height of the two faces. The workman then places his heading course and proceeds as before. In some regions the interior of the walls is made by another process not less expeditious. The bricks are laid dry, and every six or eight courses very thin mortar is spread over which runs between the joints and binds the work, more or less. It must not be thought that these practices are only employed for jerry building. They proceed no differently in works of the best class." In this last sentence the writer goes somewhat beyond the facts, "for the method is common enough to give cause for the criticism."

"The method of bonding face bricks is not less singular," continues our critic, and then goes on to describe our common and pernicious method. It is with evident surprise and curiosity that the French writer makes the statement, "For the American the face must only show bricks laid as stretchers." What a curious taste these Americans have! he doubtless thinks. Fortunately for us these slipshod methods are gradually coming more and more into disfavor, and as the necessity of substantial work is more and more appreciated, and we build more for the future than for the immediate present, these methods will cease to be characteristic of American work.

NEW ARTICLES.

The publishers wish to announce that they are having prepared several extended articles, by carefully selected writers, that will shortly be published. Some of these will be very fully illustrated by both full-size plates, and blocks in the text. Among the articles will be a study of the principles governing the design of brick cornices, and it will take up successively the different types afforded by the various historical styles, analyze them, and compare them with each other and with the modern examples they have inspired. Measured drawings, sketches, and photographic reproductions will be profusely used to illustrate the matter, which will be divided into several chapters, and published as a serial.

The arch, as an architectural motive, will be treated in much the same general way, by a different author, and in this the combination of brick with terra-cotta will be considered. Considerable attention will be paid to modern examples, and the illustrations will give work from all civilized countries, some of them being published as instances of what *not* to do.

It is the policy of the publishers to secure the very best writers and draughtsmen, and to introduce illustrations in the reading matter, leaving the regular plates for scale drawings of current work and measured drawings of foreign work.

An article upon the manufacture of brick and terra-cotta, prepared for architects, and designed to give them general knowledge while passing by the minute technical details, is being written by one of the oldest, best known, and most successful clay workers in this country. The application of glazes to terra-cotta will also be treated by a specialist, who will go into technical details only so far as they serve to show the architect what results he can expect to get from the processes at command. Correspondence from various cities, illustrated by special sketches and photographs, will also be a feature of later issues; and in this department we expect to keep pace with all that is worthy of special notice in this country and in the large cities of Europe; the illustrations will be added, as the

publishers believe that such correspondence is practically worthless without them. Arrangements have been perfected with a skilful photographer, and also a draughtsman, who will go abroad the present summer and collect unpublished material in France, Spain, and Italy, during the fall and winter, together with such data as to history, construction, color, texture, etc., as will make the work useful to our readers. While their work will not be available until the later numbers of the current volume, we feel safe in announcing it as one of the features of this year, and almost the whole of it will be received by subscribers beginning after this date.

"THE BRITISH CLAYWORKER."

A new periodical, devoted to the interests of brick and terra-cotta and tile manufacturers, has appeared in England, *The British Clayworker*, which is devoted entirely to the practical, the manufacturers' side of the subject and covers about the same field that *The Clayworker* so well fills in this country. The articles that appear in its pages are devoted to the various methods of brickmaking and clayworking in different localities, to practical questions of manufacture, trade notes, strikes, etc. The manufacture of bricks by machinery is in England gradually displacing the manufacture by hand, as it has already so largely done in this country. But in England, with its conservatism, its tenacity of traditional methods, the change is coming more slowly than it has with us. *The British Clayworker* promises to be an excellent journal in its sphere. We notice in its pages one statement to which we take decided exception.

"Uniformity of color is the ideal of the architect," says *The British Clayworker*. This hallucination of the brick manufacturers has done us a good many bad turns in this country, and is apparently beginning its ravages in England. We do not believe that uniformity of color is the ideal of most English architects; it certainly is not of the leading English architects, who are men of too much taste to desire uniformity of color. Brickmakers in this country are beginning to discover that the better class of architects dislike such uniformity, and the desire for a pleasing variety of color, which has given us the changeful mottled, old gold, brown, and other unusual shades of brick with their great variety of tint, will undoubtedly have its influence on the use of red brick also.

TERRA-COTTA AND STONE.

The *London Building News*, in a comment on these two materials, contains the following:—

"The extensive employment of terra-cotta in the exteriors of buildings ought to leave no doubt in the minds of most people that in the hands of an architect who will have what he wants, and takes some trouble to get the blocks properly made, the material has a future more lasting than stone for our town architecture. The slowness with which the material has fought its way into favor among the profession has been owing to the extreme difficulties encountered in getting it made properly, and the great delay in supplying it. These obstacles to its successful use have now been overcome, as there are a few leading firms who are ready to supply the material with the least delay.

"Every treatment for which stone is employed can be rendered in terra-cotta. Of course there are differences to be observed by the architect in the details, a flatter treatment of the mouldings, avoidance of deep hollows and undercut appearances; but with these exceptions we have buildings displaying as much artistic charm and poetry in this modern material as we have in stone. The natural beauty of stone will, of course, always be recognized where it can be used without danger of quickly perishing; but our street buildings in which the red Mansfield has been used have shown but a very partial record of durability. Nor do we recommend an admixture of stone and terra-cotta in the same building except when architectural or sculptural effects have to be produced here and there.

"Ten years ago there were those who advocated the claims of terra-cotta as a material worthy of being employed instead of stone; now these apologists are hardly needed, as stone is becoming almost the exception. The results have been beneficial. Keeping the members down is one of the valued results of the employment of the revived material. When stone was the rule, deep cornices, projecting mouldings, and carved capitals were met with. In a few years the acid laden atmosphere began the work of corrosion, and quickly left the

moulded work a worn and rounded friable surface. Large pieces of the projecting features cracked by the frost and fell away; scarcely an arris was seen in the general crumbling of surfaces. A further result has been that architects have studied the subject of brickwork more than formerly. In the stone dressing days architects designed their stonework very often in supreme indifference to bond; quoins and other features which required range with the courses were often found unable to do so, and repeated objections were made by the bricklayer in setting the stonework of intabatures, arches, weatherings which were made to sizes that did not suit the bond or the convenience of brickwork. Terra-cotta has compelled a more rigid discipline in this respect, and architects who have employed it have learned the value of bonding in its fullest sense, greatly to the progress of the art of brickwork. With regard to cost, the advantage has been on the side of terra-cotta; for although in small specially designed buildings where the material has to be prepared the expense is almost equal to stone, the difference is considerable when there is a repetition of the same moulding or pattern, as an immense amount of labor is saved in all mouldings and ornament. The great drawback is the uncertainty of obtaining the blocks in time for the workmen: when once manufacturers and architects can accommodate each other in this respect, the employment of the material will be doubled."

INTERCOMMUNICATION.

One of the aims which The Brickbuilder proposes to itself is to bring architects and brick manufacturers, as well as brick masons, into closer relationship, and as one means to this end it will open its columns to questions and answers, suggestions and criticisms, on all matters related in any way to the subject matter of the journal, whether practical or aesthetic. This department will be left entirely in the hands of our readers, and its value will depend on the interest they take in it. We have no doubt, however, that such an interest will be taken in it as will insure its great usefulness. We commend the department to architects, brick manufacturers, and brick masons, and urge them to make the freest use of our columns by sending any questions, suggestions, or points of interest which occur to them in the course of their daily practice and work, and as you, reader, whoever you may be, hope to profit by others' answers, we conjure you to reply to any question that may appear here, the answer to which your special knowledge enables you to give.

QUERY NO. 2, MARCH NUMBER. DAMP COURSE.

If "Damp Course," of Bridgeport, Conn., will lay on his brick walls two courses of slates in good Portland cement, with the joints properly lapped, he will have a damp course that will prove effectual and permanent, and be the cheapest, because it's the best.

RIDGWAY, PA.

H. JAMES.

THE BRICKBUILDER COMPETITIONS.

The publishers must acknowledge some disappointment in not receiving more designs in the two competitions just closed, and better ones than were submitted. The jury were instructed to award prizes, inasmuch as these designs are apparently conscientious efforts, and the publishers wish to award the competitors for entering the competitions and encourage them to try again and, it is hoped, be more successful, artistically. The programmes are given below and the names of the successful competitors.

COMPETITION NO. 1. AWARD.

AN ARCHED ENTRANCE.

Programme. A fraternal order or society in a large town proposes erecting on a lot of fifty feet frontage on the principal street, a two-story brick building, the ground floor of which will be given up to two stores, and an entrance way and stairs leading to the rooms of the society located on the floor above. The entrance will be in the centre of the façade, and will have an opening no less than six feet wide. The first story will be fourteen feet high from the sidewalk to the top of the girders, carrying the wall over the store show-windows. The line of the second floor will be indicated by an ornamental course directly above the girders. The ground floor will be six inches above the sidewalk. Each store must have a clear space between brick piers, for entrance and show-windows, of at least fifteen feet. The problem is to distribute the brick wall sur-

face into piers and abutments to the arched entrance, and to design this entrance, using bricks of the ordinary size and moulded bricks from any of the catalogues of well-known makers, the catalogue number and maker being indicated in each case.

JUDGMENT IN COMPETITION NO. 1.

The jury cannot forbear to express their disappointment at the character of the work submitted to them for judgment; and certainly it is about time that the attention of the profession was called to the proper use of brick, if this is the best that competition can produce.

The design marked "Tuscan" does not seem to be constructively designed. The panelled pilasters at the sides support partly the mouldings above and partly the hood moulding of the arch, and seem weak and ineffective for so large an opening. The design would have been greatly improved had these meaningless pilasters been entirely omitted. The moulding marked "H," while good enough for general service, does not seem to be suited for voussoirs, and the designer should at least have known sufficient, if he stilted his arch, not to make the members below the centre voussoirs. The general proportions are good, but as a piece of distinctive brickwork designing, it is very meagre.

In the one marked "Piacenza," the general effect of the arch mouldings is good, but the combination of Gothic and classic mouldings is not commendable. The band of ornamental brickwork around and across the head of the door is certainly not constructive. It seems to me that brick on end may occasionally do very well for a small piece of decorative work in panels or string courses, but certainly not in such a position as this.

In regard to both, they seem to us very poor renderings of a design which was distinctively one of brickwork. The joints, which are so important a part of brickwork, are, to a certain extent, disregarded. They should have been fully represented, both the vertical and horizontal showing the bond in which the joint is laid, and on the larger scale drawing should certainly have had double lines showing the width of the joint. The rendering also is poor.

These might, perhaps, answer as working drawings, but certainly are not up to the proper standard for a competition.

Of the designs submitted, the jury place "Tuscan" [I. T. Maclaren, Philadelphia] first and "Piacenza" [W. H. Kilham, Boston] second. First prize, \$10; second prize, \$7.

COMPETITION NO. 2.

A TWO-STORY STORE FRONT.

Programme. The building is to be built between two party walls, on a lot having a frontage of twenty-five feet. The first story will contain a store and the entrance to the floor above which may be used for business offices or as the merchant's residence. The first story will be fourteen feet high in the clear, the other story ten feet. The building will be simple in design and will be built of brick. Moulded brick will be only sparingly used in cornice and strings, and perhaps about the windows and doorway, the catalogue number and maker being in each case indicated.

JUDGMENT IN COMPETITION NO. 2.

The designs submitted for this competition are so meagre that they hardly seem to deserve serious criticism. The jury contents itself with placing the better ones in the following order. The others do not seem worthy of place.

Seven designs were submitted: First prize, \$25, Raymond F. Bocorselski, Hartford, Conn.; second prize, \$15, I. T. Maclaren, Philadelphia, Pa.; third prize, \$8, Edward F. Cairns, Hartford, Conn.; fourth prize, book, Wm. J. Pertz, Kokomo, Ind.

E. M. WHEELWRIGHT,	} Jury.
R. C. STURGIS,	
H. L. WARREN,	

NEW COMPETITIONS.

In spite of the discouraging result of competitions one and two, we have decided to announce two more, and it is earnestly hoped more designers will go in, at least enough to enable us to award the full list of prizes. We have invited criticism from designers in regard to programmes, prizes, time, and rendering, but as no suggestions have been received, we must again depend upon our own judgment. The following are the programmes:—

COMPETITION NO. 3.

THREE CORNICES.

Programme. It is required of the competitor to design three brick cornices, of varying heights. These heights will not exceed seven, thirteen, and twenty ordinary courses, respectively. Bricks on edge will be considered a course. Simple forms are advised, and a skilful use of ordinary bricks will count for more than an elaborate combination of ornamental ones. The gutter will be of terracotta or copper, and will be additional. Drawings should be made on a scale of one inch to the foot, and on a basis of five courses to the foot. They must be made upon *hot pressed* Whatman, 9 x 12 inches in size. Each cornice is to be laid out in elevation, seven inches long, the narrowest at the top, with equal spaces separating them, and an outside margin, all around, of one inch. At the right-hand end of each cornice a profile must be indicated. There is to be *no lettering* on the drawings, save the motto or device, which must be placed in the lower right-hand corner, and the initials and catalogue number of the brick company whose patterns are used. The address of the competitor must be sent in a sealed envelope marked with this motto or device.

Drawings must be sent, prepaid, to the Brickbuilder Publishing Co., 4 Liberty Square, Boston, Mass., on or before Aug. 15, 1892.

Awards will be made as follows: First prize, \$10; second prize, \$7.50; third prize, \$5; two fourth prizes, selection of any book in the market published at not over \$3.50; four fifth prizes, consisting of subscriptions to current year of THE BRICKBUILDER.

COMPETITION NO. 4.

CHIMNEY TOPS.

Programme. Three chimneys are required for a large country house. These are to be of the same general style so as to harmonize, and are to contain two, three, and four flues, 8 x 12 in size. In designing these chimneys attention must be paid to proper construction and bonding, also to making them as nearly as possible weather proof. To show the bonding, at least three plans must be given, showing joints. Drawings must be made on a 9 x 12 sheet, of hot pressed Whatman, on a scale of one inch to the foot. Each chimney must be given in elevation, showing the upper six feet, with the three plans below it. To secure uniform plates let the top of each chimney be placed one and one half inches from the top of the paper, the smallest chimney to the left. The twelve-inch dimension of the sheet is to be the upright one. Drawings to be delivered at the office of THE BRICKBUILDER on or before Sept. 1, 1892.

Prizes will be the same as in Competition No. 3. The jury will be the same as in the first two competitions.

NOTE. While designers are at liberty to select from the catalogues of any brick manufacturers, they are urged to give preference to the advertising patrons of the paper in whose catalogues almost all patterns will be found.

THE ILLUSTRATIONS.

Plate 25. Some English Moulded Bricks, Redrawn for the BRICKBUILDER from the Catalogue of Messrs. Johnson & Co., Keymer Junction, Sussex, England.

We publish this selection from the catalogue of Messrs. Johnson & Co., thinking it may be of interest to our readers to compare some of the stock mouldings of a well-known English maker with the mouldings which our own brickmakers offer us. In making the comparison the size of the English brick—9 x 4½ x 3 inches—must be borne in mind; but even apart from this difference, which gives English brick buildings such a different scale from our own, it will be seen that these mouldings are in several respects unlike those to be found, as a rule, in our catalogues. The most striking difference is, of course, in the existence of so many good Gothic mouldings, which are conspicuous by their absence in American catalogues. This dissimilarity is due, of course, to the frequent and generally successful use of the Gothic style in England and the comparatively rare and often unsuccessful use of it in this country, so that there has been but little demand here for Gothic mouldings for our brickmakers to supply. But apart from this—both in the classic and Gothic mouldings given—it will be seen that there are more mouldings in this English collection with small and numerous members than would be found in most American catalogues. Good drip mould-

ings are few in our catalogues, but there are quite a number in this English collection. It might be interesting and instructive to pursue the comparison further, but we leave this for our readers to do for themselves. Perhaps our brickmakers can obtain some useful hints from these English mouldings.

Plate 26. BRICKBUILDER Competition Number One. First Prize, by I. T. Maclaren, Philadelphia, Pa.

Plate 27. BRICKBUILDER Competition Number One. Second Prize, by W. H. Kilham, Boston, Mass.

Plate 28. BRICKBUILDER Competition Number Two. First Prize, Raymond F. Bocorselski, Hartford, Conn.

Plate 29. BRICKBUILDER Competition Number Two. Second Prize, I. T. Maclaren, Philadelphia, Pa.

Plate 30. BRICKBUILDER Competition Number Two. Third Prize, "Nemo," Edward F. Cairns, Hartford, Conn. Fourth Prize "Kokomo," Wm. J. Pertz, Kokomo, Ind.

We forbear any comment on these competition drawings. The criticism of the jury will be found in another column.

Plate 31. Some Boston Doorways.

These are both simple and appropriate entrances to city residences of moderate cost. The example from Trinity Terrace is by Mr. W. R. Emerson, that from Irvington Street by Messrs. Cabot & Chandler.

Plate 32. St. Augustine Mission Church, Boston, by Messrs. Sturgis & Cabot, Architects, 19 Exchange Place, Boston.

This building seems to us an unusually good instance of excellent and appropriate effect gained by the simplest means. The building is singularly attractive and thoroughly ecclesiastical in its expression. It is built of a gray Perth Amboy brick, with bands of a dark brown brick which form the bond. The towers are roofed with a brown glazed S tile; hardly any moulded brick is used. We cannot help wishing that the capitals of the columns in the doorway had been a little larger; they seem to us to lack height, and to need a deeper abacus. The effect of the capitals at present is a little weak. It would, perhaps, hardly be worth while to call attention to this little defect, were it not the only point we notice that calls for criticism.

Supplement. The Choir of the Church Santa Maria delle Grazie, Milan.

The church of Santa Maria delle Grazie, one of the most interesting monuments of Milan, consists of a Gothic nave, which, with its façade, dates from the fourteenth century, and a choir, transepts, and dome, which were built between 1476 and 1493, and are ascribed to Bramante, and are of especial interest as showing the earlier style of the great architect whose later works in Rome have made his name one of the best known and most justly celebrated in the history of architecture. Bramante, who was Rafael's uncle, was born at Urbino in the year of Brunelleschi's death, 1444 (probably), and came to Milan in 1476 under Giangaleazzo Sforza as engineer (for in those days many of the great architects were engineers, if not also sculptors or painters). He went to Rome before 1500 where he died in 1515.

His early work was influenced, as Burekhardt remarks, both by the rich and luxurious forms of the Renaissance, as seen, for instance, in the façade of the Certosa of Pavia, which was begun in 1473; and also by the beautiful and careful brick architecture of Lombardy, which seems to have made a great impression on him. Both of these influences are visible in the choir and dome of Santa Maria delle Grazie, one of the richest and most beautiful examples of brick and terracotta work in Italy. In this work, as Burekhardt well says, the true spirit of the early Renaissance expresses itself with all its graceful boldness. "On a mass of buildings of restricted plan (so that the southern transept shall not encroach on the street), Bramante proposed to erect an important, polygonal, flat dome, with light open gallery. In beautiful and masterly manner he prepares the eye for it. The building, which supports the dome,—the choir and transepts with apsidal terminations, behind which straight walls rise to a higher elevation,—is divided by frames of elegantly interrelated heights into stories of slender proportion." The pilasters, cornices, frames, medallions, and other architectural members are of red terracotta with some stone; the detached columns and their caps are of stone; the main mass of the walls and the filling of the panels are of brick.

Burekhardt mistakenly speaks of the architectural members as chiefly stone; a glance at our plate will show the mistake. Prof. Strack's work correctly describes them as being of terra-cotta.